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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,838	12/31/2001	Chuan-Yu Wu	67,200-412	4947

7590 08/02/2005

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EXAMINER	
LI, ZHUO H	

ART UNIT	PAPER NUMBER
2189	

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/036,838	WU ET AL.	
	Examiner	Art Unit	
	Zhuo H. Li	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *21* is/are allowed.

6)☒ Claim(s) *1,2,5-8,11,12 and 20* is/are rejected.

7)☒ Claim(s) *3,4,9,10,13,14 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

SCElmore

STEPHEN C. ELMORE
PRIMARY EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

S.o.o

DETAILED ACTION

Response to Amendment

1. This Office action is in response to the amendment filed 4/20/2005.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-2, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zheng (US PAT. 6,195,303) in view of Boyers et al. (US PAT. 6,167,484 hereinafter Boyers).

Regarding claim 1, Zheng discloses a method in a memory device (130, figure 1) having a bank of N memory blocks (210a and 210b, figure 2 and col. 3 lines 43-44), the method

comprising the steps of generating an address for a first one of the N memory blocks as a current first possible refresh block (col. 7 lines 17-27), checking for contention between the current first possible refresh block (REF_ADDR) and an externally generated access (EXT_ADDR) to one of the N memory block (col. 7 lines 27-42), and permitting the externally generated access to the one of the N memory blocks during a certain interval and refreshing the at least portion of the current first possible refresh block during the certain interval responsive to the memory block of the externally generated access not contended with the current first possible refresh block (col. 7 line 65 through col. 8 line 39). Zheng differs from the claimed invention in not specifically teaching the step of generating address for a current second one of the N memory blocks as a current second possible refresh block for refreshing at least a portion of one of the possible refresh block. However, Boyer teaches to optimize memory refresh performance by generating next history bit portion, read as the current second possible refresh block, and the current history bit portion, read as the current first possible refresh block, which the current history block bits are processed to determine what to refresh or not refresh in the current MROC, and the next history bit portion are selectively updated in the current MROC for use in the next MROC" processing (col. 16 line 41 through col. 17 line 45), thereby improving system bandwidth (col. 17 line 12). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Zheng in having the step of generating address for a current second one of the N memory blocks as a current second possible refresh block for refreshing at least a portion of one of the possible refresh block, as per teaching of Boyer, in order to improve system bandwidth.

Regarding claim 2, Zheng teaches the step of permitting the externally generated access to the one of the N memory blocks during a certain interval and refreshing the at least portion of the current first possible refresh block during the certain interval responsive to the memory block of the externally generated access contended with the current first possible refresh block (col. 8 lines 2-4) and Boyer teaches the current first and second possible refresh blocks being different ones of the N memory blocks for indicating the refreshing operation in processing (col. 17 lines 7-12). Thus, the combination of Zheng and Boyer teaches the claimed limitations.

Regarding claim 5, Boyer teaches the step of generating an refresh block includes portion of the current first address for the current first possible generating an address for a current possible refresh block, and wherein the method comprises the step of generating first possible refresh block responsive to the current portion an address for a next portion of the current not being a last portion of the current first possible refresh block (col. 16 line 41 through col. 17 line 45).

Regarding claim 6, Boyer teaches the step of generating an address a portion next first possible refresh block responsive the current portion being a last portion of the current first possible refresh block (col. 16 lines 41-44).

Regarding claims 7-8, Boyer teaches the step of generating an address for a next portion of the current second possible refresh block responsive to the current portion not being a last portion of the current second possible refresh block (col. 17 lines 4-7), and the step of generating an address for a portion of a next second possible refresh block responsive to the current portion being last portion of the current second possible refresh block (col. 17 lines 7-12).

Regarding claim 11, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 12, the limitations of the claim are rejected as the same reasons set forth in claim 2.

Regarding claims 15-18, the limitations of the claims are rejected as the same reasons set forth in claims 5-8, respectively.

Allowable Subject Matter

4. Claims 3-4, 9-10, 13-14 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claim 21 is allowed.

Response to Arguments

6. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Leung (US PAT. 6,415,353) discloses a memory array having a multi-bank refresh

scheme for reducing the number of collision between refresh operations and external accesses (abstract).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhuo H. Li whose telephone number is 571-272-4183. The examiner can normally be reached on Tue-Fri 8:30 AM-6:00 PM, and alternate Monday 8:30 AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zhuo H. Li
Patent Examiner
Art Unit 2189

STEPHEN C. ELMORE
PRIMARY EXAMINER